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A BEGINNER'S GUIDE TO DEVELOPING
A RECYCLING PROGRAM IN
NATIONAL FOREST CAMPGROUNDS

Patricia M. Welch
Outdoor Recreation Planner
USDA Forest Service, Eastern Region
310 West Wisconsin Avenue
Milwaukee, Wisconsin 53203
(414) 297-3772

CLASS OF 1990

This paper was prepared as a student project in partial fulfillment of the requirements of the Professional Development for Outdoor Recreation Management Program at Clemson University. It in no way reflects USDA Forest Service policy nor are the opinions expressed those of anyone other than the author.

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ABSTRACT

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Outdoor Recreation Planner
USDA Forest Service, Eastern Region
310 West Wisconsin Avenue
Milwaukee, Wisconsin 53203
(414) 297-3772

Title: A Beginner's Guide to Developing a Recycling Program in National Forest Campgrounds

Abstract: More people recreate on National Forest System lands than on any other public lands in the country. Each year, millions of recreationists generate millions of pounds of solid waste. It is time for the Forest Service to take a serious look at this source of solid waste. This report focuses on recycling in National Forest campgrounds and outlines some considerations when developing and implementing a campground recycling program. As evidenced by this report, there exists a lack of research related to campground recycling and the issues involved with addressing recreation-generated solid waste.

Others Who Might Find This Report Useful:
Outdoor Recreation Planners, Recreation Staff Officers, District Recreation Staff, Recreation Research Professionals

Key Words: Recycling, Solid Waste Management, Campgrounds

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EXECUTIVE SUMMARY

Title: A Beginner's Guide to Developing a Recycling Program in National Forest Campgrounds

Author: Patricia M. Welch
Outdoor Recreation Planner
USDA Forest Service, Eastern Region
310 West Wisconsin Avenue
Milwaukee, Wisconsin 53203

Summary: The 1990's has been labeled by many as the decade of environmentalism. People are more aware than ever about environmental issues, and accompanying this has been rising concern and interest in the management of public lands.

One environmental issue that is rapidly grabbing the attention of the public is that of solid waste management. It is time for the Forest Service to take a look at the waste generated from management operations and other activities on National Forest System lands. As the largest provider of outdoor recreation in the United States, the Forest Service needs to address the issues related to recreation-generated solid waste and its management implications.

The objectives of this report are:

1. Emphasize the importance of recycling in National Forest campgrounds.
2. Assist recreation personnel in identifying some of the basic elements of a campground recycling program.
3. Provide information which will serve as a catalyst for future recycling programs and research projects.

This report addresses recycling in the Forest Service, with an emphasis on campground recycling, and suggests that recycling supports some of the major Forest Service initiatives and areas of emphasis. General guidelines are offered to assist recreation personnel in developing and implementing recycling programs in National Forest campgrounds. These guidelines briefly address the following:

Recycling Receptacles

Location of Recycling Receptacles

Signing

Information

Customer Satisfaction

Operation Procedures

Education of Forest Service Employees

Program Monitoring and Evaluation

In addition to these general recommendations, the report provides a discussion on future research needs related to addressing recreation-generated solid waste.

INTRODUCTION

Outdoor recreationists generate hundreds of thousands of tons of solid waste each year. As the largest provider of public outdoor recreation in the United States, the Forest Service has the opportunity and responsibility to be a major player in the war against waste. Through conscientious and innovative solid waste management practices, the Forest Service can take a leadership role in solid waste management.

STATEMENT OF PURPOSE

There is a need for some guidance and emphasis on recycling programs that focus on recreation-generated solid waste. The purpose of this paper is to address the issues of recycling in Forest Service campgrounds and identify those elements which, when implemented, would lead to the highest probability of developing a successful recycling program.

The objectives of this paper are threefold:

1. Emphasize the importance of recycling in National Forest campgrounds.
2. Assist recreation staffs in identifying some of the basic elements of a campground recycling program.
3. Provide information which will serve as a catalyst for future recycling programs and research projects.

For the purpose of this study, the following assumptions have been made:

1. The merits of recycling are not "on trial." The reader recognizes the social values and ethics of recycling.
2. The focus of this paper is on campground recycling and, as such, the paper purposefully does not devote time to office and home recycling programs or to other solid waste management issues. The reader recognizes this omission as a by-product of the paper's focus and not as neglect.

LITERATURE REVIEW

Though literature specifically addressing campground recycling programs (particularly those in rural areas) is limited, the following is a summary of literature and information applicable to the objectives of this paper:

Apotheker: Participation in Drop-off Recycling Programs.

According to this report, "the visibility of community drop-off sites was enhanced by uniform construction among sites." Providing information at these collection sites could be a logical and effective method of distributing recycling information to the public.

Apotheker: State and Provincial Recycling Associations Evolve.

The number of state recycling associations and their memberships has been rapidly increasing, which may be indicative of the severity of the solid waste crisis in the country. Also, "the awareness of environmental issues by the general public and the media has perhaps never been higher."

Deshaye: Study Provides Insights into Recycling.

Deshaye's study compared various recycling programs and their differences in effectiveness between lower and higher socio-economic neighborhoods. The results indicated that the higher socio-economic group had higher program

participation, but the lower socio-economic group contributed as much, if not more recyclable materials per household. Thus, higher income does not equate to greater quantities of recyclables.

"Education, convenience, social pressure and recycling for a 'cause' play important roles in motivating people to recycle."

Folz, Hazlett: A National Survey of Local Government Recycling Programs.

The results of a survey mailed to 450 cities in 25 states, each identified as operating a solid waste recycling program, indicates that there exist some common and important problems in operating a recycling program. These problems are:

1. Finding markets for recyclables.
2. Getting more citizens to participate.
3. Securing adequate funding for the recycling program.

One unexpected finding was that requiring residents to sort their recyclables into separate containers was unrelated to program participation. It appears that source separation is not perceived as an inconvenience and, as such, does not deter participation in recycling programs.

Gagliardo: Recycling in the '90s: A Resource Recovery Perspective.

Gagliardo, the President of the National Resource Recovery Association, stresses the "comprehensive or integrated approach to solid waste management where recycling is a vital part of an overall system which also includes waste reduction, waste-to-energy and landfill."

The author suggests that "Governments at all levels must require the use of products made from recycled materials in all their activities. In addition, products used by government must be selected with recyclability as a criteria."

Ham: Communication and Recycling in Park Campgrounds.

Ham's study, conducted at Fort Canby State park in western Washington, made the basic assumption that the effectiveness of a recycling program appears to depend on three factors:

1. The instructions describing the desired process for separating and disposing of garbage must be read by campers.
2. The instructions must be clear and understandable to the reader.
3. "Following exposure to instructions, campers must correctly sort their garbage for the program to work at all.

The results of this study indicate that written instructions must be clear and concise if they are to be effective in prompting campers to sort and dispose of their garbage properly. Also, "it might be desirable to inform campers about the type of sorting required **before** they use a recycling station for the first time." Visual aids on recycling containers may assist in clarifying the instructions.

Howells: We Can save the Earth.

Howells' article outlines the numerous ways in which owners of recreational vehicles (RV) can help the environment. Recycling is one of the practices credited with saving our natural resources and energy. "One other thing RVers can do to help the recycling process: Encourage campgrounds to recycle."

O'Rourke, Hely: Creating a Public Information Campaign that Works.

"To push people past the 'buts,' a recycling public education campaign has to do more than just provide information. It has to provide motivation."

O'Rourke and Hely reinforce that knowing your customers, identifying their attitudes toward recycling, and incorporating their needs into the information, is critical to the effectiveness of the campaign.

Following are some principles to consider when developing an information campaign:

1. Base your information on facts.
2. Avoid a format that distracts your audience from the motivational strategy.
3. Know exactly what the behavior is that you are trying to promote.
4. Be positive. ("Even in the case of trying to get people to not do something, such as littering or starting fires, taking the positive

approach is more effective. 'Only You Can Prevent Forest Fires' is a good example.")

5. Tackle one problem at a time. Don't overwhelm your audience with an overload of information.

Reilly: The Federal Government and Recycling in the 90s.

In emphasizing the importance of a united recycling effort, Reilly stresses the importance of Federal leadership and the responsibility "to lead by example."

Roggenbuck, Ham: Use of Information and Education in Recreation Management.

This study addresses the need for management to consider the variables involved with information transfer, and the influence those variable have on a behavioral response.

Success of information that results in the desired behavioral change "appears to depend on whether the target audience actually receives the message, the source of the information, amount of information given, timing of the message transfer, channel used to communicate the information, and characteristics of the target audience and situation."

The findings of this study reinforce the need for managers to identify their target audience and design information to meet the needs of that audience.

Seldman: Recycling in the 1990s.

Seldman, Director of Waste Utilization Institute for Local Self-Reliance, supports the idea that rural economies could be strengthened if regional economies provided the actual processing of recyclables into finished products.

Stauffer: Recycle While You Play.

Stauffer reviews some of the most successful park recycling programs in the country, including Yosemite National Park's and New Jersey State Park's program.

Two considerations in locating recycling receptacles are:

1. If possible, the number of recycling containers should be equal to the number of garbage barrels.
2. The recycling containers need to be located right next to the garbage barrels. (According to Gail Lemaldi of the New Jersey Office of Recycling, "People won't walk even an extra 50 feet to visit both spots.")

Watson: Beyond the Bright Lights: Six Rural Recycling Programs.

As evidenced by this report, innovation is a vital part of operating rural recycling programs. For those rural communities that receive seasonal

tourists, the challenge is to "educate the visitors and make it convenient for them to participate in the recycling program."

DISCUSSION

The USDA Forest Service, as a Federal agency, and as a conservation and natural resource agency, has a responsibility to take a leadership role in solid waste management. As the major provider of outdoor recreation in the United States, it is time for the Forest Service to address the issue of recreation-generated solid waste.

As public awareness of and demand for recycling programs increase, the Forest Service has the opportunity to enhance its image, encourage wise use of our natural resources, and promote conservation through the provision of recycling programs and information campaigns.

Recycling is the right thing to do; but, recycling programs also support the goals of several Forest Service initiatives and emphasis areas: The Eastern Region Positioning Statement, National Recreation Strategy, Rural Economic Development, and New Perspectives.

Eastern Region: Positioning for the Future

The Eastern Region Positioning Statement is a newly-developed but important document which is designed to guide the Eastern Region into the future. This one-page document describes where we want to be in the future, how we want to be viewed by the public, and how we will manage the National Forest System lands in the Eastern Region. The positioning statement focuses on three broad areas: quality of the natural environment, conservation leadership, and people's present and future needs. The document emphasizes the role of the Forest Service as responsible stewards of National Forest ecosystems.

Recycling makes a strong statement of respect for our finite natural resources and the quality of the environment. Through campground recycling programs, the Forest Service can promote the "interrelationships of people and natural resources." Recycling is an excellent tool for demonstrating how people's actions affect the quality of the environment and natural resources.

Recycling responds to the present and future needs of society. Recycling is destined to become a common solid waste practice, and the Forest Service can assist in promoting a recycling ethic among its forest visitors.

A Strategic Plan for the 90's: Working Together for Rural America

Rural economic development is an emphasis within the Forest Service. The Chief of the Forest Service encourages all employees to become involved with rural communities by forming partnerships and strengthening ties to the community. Recycling is an excellent vehicle to strengthen the bond between the Forest Service and rural communities.

Many rural communities face the same challenges as National Forests in developing recycling programs. Geographical locations and distances from recycling markets pose similar obstacles to recycling in rural communities as they do to recycling in many National Forest campgrounds. As with National Forests, some communities are faced with the challenge of encouraging seasonal visitors to participate in local recycling programs.

Working together, National Forests and local communities could increase the efficiency and effectiveness of both their recycling programs. Rural recycling may also lead to innovative economic development. "Local and regional needs for economic diversification and job creation, and the need for recycling market development, present mutually beneficial opportunities" (Gainer, 1991). As Gainer states in her report, "Recycling in the 1990's presents a new

frontier of business opportunities for American ingenuity." This report and others indicate that recycling and economic development may be mutually beneficial.

National Recreation Strategy

The Forest Service National Recreation Strategy emphasizes partnerships, customer satisfaction, and excellence. Recycling has the potential of addressing all three.

Various motives are leading individuals, communities, and organizations to initiate and emphasize recycling. Some recycle because it is "the right thing to do." Others recycle for the income that it generates. And still others recycle because it is in their best interest to do so, such as corporations attempting to meet the needs and wants of their consumers. Whatever the reasons may be, people are recycling. And this means there exist numerous possibilities for partnerships.

National Forest customers may soon be demanding recycling programs to meet their needs. As more and more communities mandate recycling, people will come to expect recycling services. Campground recycling programs would satisfy those visitors accustomed to recycling, and educate those who may lack recycling experience. Recycling would surely send a positive message to all Forest Service customers.

New Perspectives

Although New Perspectives stresses responsible ecosystem management, recycling sends a strong stewardship message. Recycling conserves energy and natural resources, enhances the quality of the environment, and responds to the needs of today's society.

Recycling and the Forest Service

As demonstrated above, recycling supports many of the current Forest Service emphasis areas. As a "white hat" issue, recycling is a winner and would enhance the image of the Forest Service. However, if not developed and implemented properly, recycling could just as easily scar the image of the Forest Service.

PRESENT STATUS OF RECYCLING IN THE FOREST SERVICE

Recycling is on the move in the Forest Service. All levels of the organization are in some way addressing solid waste management. Following are some efforts worthy of recognition:

- * Most offices throughout the organization have initiated at least a paper recycling program.
- * Every region has created a computerized recycling network, which have all recently been consolidated into a National Recycling Network by Judith York on the Nez Perce National Forest in Idaho. Theoretically, every forest has atleast one representative on the network, thereby facilitating communication throughout the agency.
- * Efforts are underway to change procurement regulations to allow government purchase of more products made from recycled materials and of products which are recyclable.
- * The Forest Products Laboratory in Madison, Wisconsin, has recently received funding from the Environmental Protection Agency (EPA) to conduct some recycling-related research projects. One study involves the use of both scrap plastics and waste paper to produce composite materials. Another project uses a dry method to explore ways of fiberizing, or pulping, old newspaper. (Watson, 1990)
- * Recycling is on the list of recreation-related issues soon to be addressed by the San Dimas Technology and Development Center.

This is just a sampling of recycling-related projects taking place throughout the Forest Service. Although the recycling issue in general needs to receive a

stronger emphasis in the Forest Service, there is a definite lack of attention given to recreation-generated solid waste and its management implications. As a Federal agency, and as the largest provider of outdoor recreation in this country, it is imperative that the Forest Service take a strong look at its waste stream and its relationship to the solid waste disposal crisis facing this country today.

The lack of attention to recreation-generated solid waste does not mean, however, that absolutely nothing is being done to address this issue.

Eastern Region Addresses Recreation-Generated Waste

The National Forests in the Eastern Region, as are National Forests throughout the country, are at different stages of developing and implementing recycling programs geared towards reducing the amount of recreation-generated solid waste. However, the Eastern Region has some very unique characteristics of which no other region can boast - or for that matter, would want to boast. More than half the United States population resides in this region - a population greater than the other eight regions combined. In addition, the region encompasses twenty states, which is also more than any other region. Thus, the fourteen forests in the Eastern Region are confronted with a variety of opportunities and obstacles when challenged to develop campground recycling programs.

To some degree, every forest has attempted to collect recyclables from forest visitors. However, the White Mountain National Forest in New Hampshire is presently undertaking the most comprehensive recycling effort in the Eastern Region - perhaps of all National Forests. The Forest has teamed with the

Appalachian Mountain Club and New Hampshire State Parks to tackle the thousand of tons of recreation-generated solid waste left by people recreating in the mountains of New Hampshire. The White Mountain National Forest has also formed a partnership with the American Waste Corporation to accept the Forest's recyclables. (Kacprzyński, 1991)

Dow Chemical Company, which has worked with three National Parks (Acadia, Grand Canyon, and Great Smokies) in getting recycling programs underway, has offered this New Hampshire venture the basic framework for a public information campaign. The White Mountain National Forest and its partners will modify this information to fit their needs and the needs of their customers.

This united approach will result in a more effective and efficient recycling program. Consequently, the people visiting the White Mountains of New Hampshire will receive one consistent and clear recycling message throughout the state, as opposed to several different messages. This should result in less confusion and more participation among forest visitors.

The goal of this multi-agency effort is a 20% reduction in the waste stream for the first year, with a goal of a 65% waste reduction by the fifth year.

New Hampshire is fortunate to have a number of different organizations and local communities actively participating in recycling programs. Though not all forests are as fortunate, many other forests throughout the Eastern Region are addressing recreation-generated waste in some way. Many forests place recycling containers in their major campgrounds, with collection methods varying from one location to another. To complement these efforts, individual forests have designed signs and pamphlets to promote participation. Recycling has been incorporated into some campground host and interpretive programs.

Though these efforts vary from forest to forest, the one constant is the desire to implement an efficient and effective campground recycling program.

RECOMMENDATIONS

Presently, very little "how to" information is available on developing a campground recycling program. It has been the commitment and dedication of certain Forest Service employees, who have taken it upon themselves to initiate campground recycling, that has been responsible for the programs that do currently exist.

Ultimately, campground recycling programs will vary from forest to forest - possibly even from district to district on a single forest. State regulations (i.e., bottle bills and recycling laws), availability of partners and volunteers, and geographical location are just some of the elements that influence every forest's management. All forests and their districts must utilize those resources unique to their situation.

As more recycling programs are established in National Forest campgrounds, more will be learned about what methods are most successful. Until more is learned from research and from trial and error, however, there appear to be some factors worth considering when developing and implementing a campground recycling program, such as receptacles, signing, and information. Following, some of these considerations are addressed.

Recycling Receptacles

Recycling containers need to be visible and recognizable to your target audience. There should be consistency among containers throughout the forest to minimize customer confusion. A higher degree of participation in your recycling program would be expected when visitors can easily identify with the receptacles.

To enhance Forest Service visibility, you may want to consider attaching the Forest Service logo on the containers. A standard Forest Service recycling logo nationwide may be very beneficial to the public, the recycling effort, and to the visibility of the Forest Service.

Depending on your situation, you may want to consider a locked receptacle, particularly for the container used to collect aluminum. Some forests have reported a high rate of pilfering of aluminum cans because they are the most marketable.

Color would be another consideration. Some recreation settings require more primitive facilities than others, and color may be very intrusive to a primitive experience. In fact, emphasizing a carry-in/carry-out policy in primitive settings may be the most suitable.

Location of Recycling Receptacles in National Forest Campgrounds

Location of the recycling containers in a campground setting is very important to the success of your recycling program. Studies have shown that recycling containers situated next to the regular garbage can/dumpster are the most successful. Providing one location for regular garbage disposal and another for recyclables is inconvenient. People are usually not willing to make two separate trips to dispose of their waste, even if it means walking only an additional fifty feet (Stauffer, 1990).

Garbage odors and wastes are an attractant to many animals and nuisance insects. If your forest is home to bears, consider bear-proof lids, and be sure to locate the dumpster and recycling containers a safe distance from all campsites to lessen the chance of visitor-bear confrontations. Also, closed lids would prevent bees from gathering inside containers, thereby eliminating another potential risk to campers.

Another factor to consider when locating your collection stations is the ease at which visitors can dispose of their waste. People with disabilities, the elderly, and children have special needs that must be considered when designing and locating your recycling stations. As more Forest Service facilities are designed to meet accessibility standards, the Forest Service can expect a more diverse public in National Forest campgrounds and participating in recycling program.

Signing for Recycling Stations and Containers

From his research, Ham (1983) found that signing is important in trying to promote the desired behavior. Signing must be clear and easily understood. Slogans can be very effective in promoting your program; however, do not sacrifice clarity for a "catchy" slogan that blurs the content of your message. Also, graphics/visuals would assist visitors in deciding how to correctly sort their waste.

As with container design, signing should be consistent and visible. Attaching a Forest Service logo may be appropriate. Certain situations may also necessitate that the Forest Service credit partners involved with the forest's recycling program.

Recycling Information

Many ingredients go into developing an effective information campaign.

1. **Be Clear and Concise.** Information, if it is to produce the desired results, must be understood by your target audience.
2. **Don't Overload.** When first initiating a campground recycling program, don't set yourself up for failure. Asking forest visitors to participate in recycling and composting all at once may be asking too much. Tackle one

issue at a time. Information overload could result in confusion and less program participation.

3. **Availability.** If you want your forest visitors to participate in your recycling program, they must receive the information. Be sure that information on your recycling program is easily accessible to all your customers.

4. **Timing.** Recycling programs require that visitors pre-sort their waste. Therefore, it is imperative that the information transfer takes place prior to the time visitors dispose of their waste. Studies have shown that it is highly unlikely that people will sort their garbage at a recycling station once it has been commingled.

5. **Transfer of Information.** When feasible, utilize campground hosts, interpreters, or naturalists to verbally encourage participation in the recycling program. Personal contact has been shown to result in higher participation than an information sheet alone.

6. **Involve Kids.** Encourage participation among children. Consider developing special recycling programs and information for children. Often times, targeting children is an effective way of reaching adults.

Customer Satisfaction

The success of most any program is dependent on how well the manager knows the target audience. All efforts may be wasted if they do not address the needs of the audience. When considering developing a recycling program, identify the needs of your customers. Who are they? Where do they come from? How familiar are they with recycling? Finding out as much as possible about your customers, the target audience, will be instrumental in the design and implementation of your recycling program.

As more and more communities mandate recycling, people will come to expect recycling services. Campground recycling programs would satisfy those visitors accustomed to recycling, and educate those who may lack recycling experience. Such a service has the potential to enhance the quality of the visitor's experience, and a campground recycling programs would surely send a positive message to all Forest Service Customers. In fact, National Forest visitors may soon be demanding recycling programs to meet their needs and expectations.

Promote customer feedback as one method of tracking program success. Customer feedback may generate concerns overlooked by management, and customers may feel valued for having been asked for their input. And remember that feedback is a two-way street. Managers need to illustrate that customer feedback truly is valued and appreciated.

Operation Procedures

Very little information has addressed the logistics of some of the major procedural considerations in developing a recycling program in National Forest campgrounds. Collection of recyclables, transportation to recycling markets, and other key operation functions have been purposefully omitted. Much of these operation functions are dependent upon those characteristics and resources unique to each location - and the ingenuity of its management. More alternatives for these types of operation procedures will be identified as more forests implement campground recycling programs.

Educate Forest Employees

Educating Forest Service employees is just as critical, if not more so, as educating the public. Employees must be made aware of the recycling efforts

and become conscious of their own actions when in uniform. It will be important for the Forest Service to lead by example.

Program Monitoring and Evaluation

Ongoing monitoring and evaluation of the recycling program is imperative. Is the program achieving its objectives? Are people participating in your program? Is the solid waste stream declining? Managers must constantly ask these questions and refer back to program objectives for measuring success. If the program appears not to be working, attempt to determine the reasons why it is not working. Be flexible and open to revisions.

FUTURE RESEARCH NEEDS

There is an obvious need for much more research in the arena of recreation-generated solid waste - specifically related to rural campground recycling programs.

- ** What method of information transfer - or mix of information - results in the highest participation rates?
- ** Is one container design better than another?
- ** How does the recycling program affect the recreation experience?
- ** Are campers more satisfied in a campground which facilitates recycling than in one which does not?
- ** How do we truly measure the success of a campground recycling program? We can measure the reduction in waste - and we can measure the amount of recyclables collected. But what happens if one of our main objectives is to educate our customers? How do we measure the long-term effects of our program? Do our visitors learn from our programs and carry these practices back home?
- ** If we do determine a recycling program to be successful, do we know why that program is successful? Is the information responsible for its success, or is it just that our customers are already familiar with and participate in recycling? And would a "successful" program be successful on another forest? Why or why not?

These are just a few of the questions that need to be addressed.

SUMMARY

Short-term

There are numerous actions that National Forests can take prior to receiving any mandates. As mentioned previously, many National Forests have taken it upon themselves to implement campground recycling programs. Many more National Forests can do the same. Recycling programs do not need to be elaborate to be meaningful. Information campaigns can be inexpensive, yet effective.

The National Forest communication networks and sharing of information must continue. Outreach and communication with Forest Service customers is also important - and such communication can begin today.

Long-term

Many questions remain unanswered in regards to the best methods for providing efficient and effective campground recycling programs. Experience and research will provide some answers in the future. Therefore, it is important that the Forest Service maintain a link with researchers working in the recycling arena and, as appropriate, submit research proposals relative to National Forest needs.

Monitoring must be a long-term commitment so as to respond to the ever-changing needs of a dynamic society.

Conclusion

Through campground recycling programs, the Forest Service has the opportunity to be a very influential and important change agent in America's efforts to reduce the waste stream. Forest Service recycling programs will reduce the waste stream generated from National Forest campgrounds. More significantly,

however, recycling education and information in campgrounds may be the first step some visitors take in making recycling a part of their daily lives. Thus, the short-term result of reducing campground waste may be very minimal when compared to the long-term benefits of the recycling programs. Society as a whole benefits as each of us begins and improves upon our solid waste management practices. After all, "what is a concerted global effort but the combination of a number of individual efforts?" (Howells, 1990)

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